

REMARKS

Applicant thanks the Examiner for acknowledging the claim for priority under 35 U.S.C. § 119, and receipt of certified copies of the priority documents submitted June 19, 2001.

Applicant thanks the Examiner for considering the references cited with the Information Disclosure Statement filed May 27, 2003.

Applicant thanks the Examiner for withdrawing the rejections of record based on Ozawa et al. (US 6,386,466) in the April 25, 2003 Office Action.

Status of the Application

Claims 1-21 and 27-36 are all the claims pending in the Application, as withdrawn claims 22-26 have been cancelled without prejudice or disclaimer. Claims 8-10, 13-17, 20 and 21 have been rejected. Claims 22-26 are withdrawn from consideration as being non-elected.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 1-7 are allowed.

Applicant thanks the Examiner for indicating that claims 18 and 19 would be allowed if rewritten in independent form. In view of the Examiner's indication, Applicant has rewritten claim 18 and 19 in independent form, and therefore believes these claims to be immediately allowable.

Applicant thanks the Examiner for indicating that claims 11, 12 and 27-36 would be allowed if rewritten in independent form. However, Applicant respectfully requests that the Examiner hold in abeyance such rewriting until the Examiner has had an opportunity to reconsider (and withdraw) the prior art rejection of the other claims.

Additionally, Applicant notes that claims 27, 29, 31, 33 and 35 depend directly from allowed claim 1. Thus, it is believed that these claims should simply be indicated as “allowed.”

Claim Rejections

The Examiner has rejected claims 8, 9, 10, 13, 14, 15, 16, 17, 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Gamst (US 4,134,547; hereinafter “Gamst”) in view of Hedin (US 5,529,242; hereinafter “Hedin”). This rejection is respectfully traversed.

Gamst discloses (see FIG. 1) a jet pipe for cleaning “workshop premises and other large rooms” (col. 1, lines 16-17). The jet pipe is composed of an inlet pipe 1 and outlet pipe 2. Outlet pipe 2 has a varying shape, as shown by conically converging portion T, straight portion X, and conically diverging portion Y. An annular chamber 6 is provided, wherein compressed air is pumped and exits through slit opening 7 to mix with water pumped through venturi nozzle 8. The air/water mix then passes through converging portion T, straight portion X, and diverging portion Y of outlet pipe 2, and is further accelerated.

Hedin discloses a device for “making and distributing snow or small water droplets” (col. 1, lines 7-9). The device 2 is composed of an inner tube 4 that carries water, an outer tube that carries air, and a nozzle orifice wherein the air and water are mixed and distributed. Openings 16 and 14 of inner tube 4 and outer tube 6, respectively, are arranged at the same longitudinal point along device 2, and are arranged at the minimum diameter portion of channel 12 (feed opening 10). After the air and water are mixed, the mixture is atomized and distributed by surface 20, so that the mixture can be widely distributed as artificial snow.

Thus, Gamst and Hedin are clearly provided for two quite different uses, and have an output that is correspondingly very different. Gamst produces a focused, high pressure stream of

water for cleaning purposes, while Hedin produces a more diffused and broad spray of atomized water to produce artificial snow.

There Would Have Been No Motivation To Modify Gamst In View Of Hedin

Due to these drastic differences in output, and the necessarily large differences in the corresponding constructions, Applicant respectfully submits that one of skill would not have looked to Hedin to modify Gamst. Further, Applicant respectfully submits that the Examiner's position that it would have been obvious "to have modified the device of Gamst by providing air injection at a higher velocity that [sic] that of the water as taught by Hedin to cleaning [sic] the cleaning liquid into droplets and to accelerate them," is unsupported.

First, Gamst is seemingly unconcerned with the relative velocities of the water and air used in its jet pipe. Accordingly, both (1) the provision of air at a higher velocity than water, and (2) some teaching that the provision of such a relationship would improve the arrangement of Gamst, must be taught or suggested in Hedin. Specifically, the Examiner must "show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for a combination in the manner claimed." *In re Rouffet*, 47 USPQ2d 1453 (Fed.Cir. 1998). The mere fact that references can be "combined or modified does not render the resultant combination [or modification] obvious unless the prior art also suggests the desirability of the combination [or modification]." *In re Mills*, 916 F.2d 680 (Fed.Cir. 1990); MPEP §2143.01.

Here, the usage of air at a higher velocity than water is distinctly related to the limited usage of Hedin to produce artificial snow, as the higher velocity is used to provide "good cooling capacity" (col. 4, line 12), or for "spreading the droplets over a considerable area" (col. 4, line

24). There would be no comparable purpose to cool the water or spread the droplets over a considerable area in Gamst. Accordingly, there would have been no motivation to modify Gamst as the Examiner alleges.

Additionally, even if it could somehow be established that one of ordinary skill would have been motivated to modify Gamst in view of Hedin, Applicant respectfully submits that even the resultant combination would fail to teach or suggest all of the features recited in rejected independent claims 8 or 15.

Independent Claim 8

Applicants respectfully submit that neither Gamst, Hedin, nor any combination thereof; teaches or suggests *at least* “an ejection nozzle portion having a minimum diameter portion and a trumpet-shaped portion formed by a curved surface located upstream of said minimum diameter portion, an inclination angle of a tangent to the curved surface progressively decreasing toward said minimum diameter portion,” as recited in claim 8.

Specifically, although the Examiner seems to allege that the “trumpet-shaped portion formed by a curved surface” is disclosed in FIG. 1 of Gamst, Applicants respectfully submit that only flat surfaces are shown in the trumpet shaped portion (conically converging portion T) of the “jet pipe” disclosed therein.

Applicant believes the Examiner may be taking the position that the curved cross section of converging portion T (such as that shown in FIG. 2) provides the recited “curved surface.” However, this cross section cannot teach or suggest such a feature, as it does not also provide “an inclination angle of a tangent to the curved surface progressively decreasing toward said minimum diameter portion,” as additionally recited in claim 8. In contrast, the tangents of this

circular cross section would have *constant* inclination angles at various cross sections approaching the minimum diameter portion. Inclination angles would only change *around* each individual cross section, which is necessarily at a constant distance from the minimum diameter portion.

Additionally, Applicant respectfully submits that Hedin fails to provide the features missing from Gamst. Specifically, although Hedin does disclose seemingly curved surfaces on the inner walls of outer tube 6 near opening 14, these curved surfaces are not arranged in a “trumpet-shaped portion that is part of an ejection nozzle portion,” as recited in claim 8. Rather, these curved portions are upstream of any portion that could reasonably be read as an ejection nozzle portion.

Thus, Applicant respectfully submits that independent claim 8 is patentable over the applied references. Further, Applicant respectfully submits that rejected dependent claims 9, 10, 13 and 14 are allowable, *at least* by virtue of their dependency.

Additionally, Applicant respectfully submits that *at least* claim 14 is separately patentable over the applied references, and that the Examiner’s interpretation of this claim as one of intended use is incorrect. Specifically, claim 14 recites that “a powder material can be supplied to an upstream side of said gas ejection port.” Accordingly, claim 14 recites the proposition that the cleaning nozzle be capable of use with a powder material, not how the cleaning nozzle will be used.

Further, the applied references fail to teach or suggest any provision for such powder. Thus, Applicant respectfully submits that claim 14 is allowable over the applied references.

Independent Claim 15

Applicant respectfully submits that neither Gamst, Hedin, nor any combination thereof, teaches or suggests *at least* “a converging-diverging nozzle portion having a minimum diameter portion and a trumpet-shaped portion formed upstream of said minimum diameter portion,” as recited in claim 15.

Specifically, Applicant respectfully submits that the nozzle portion shown in Gamst is not a “converging-diverging nozzle.” In contrast, the nozzle of Gamst has a conically converging section T and a conically diverging section Y separated by a constant diameter section X. This separation of the respective converging and diverging portions results in a nozzle that is not “converging-diverging.” For an illustrative, non-limiting *example* of a “converging-diverging nozzle,” see FIG. 13 of the Application.

Thus, Applicant respectfully submits that independent claim 15 is patentable over the applied references. Further, Applicant respectfully submits that rejected dependent claims 16, 17, 20 and 21 are allowable, *at least* by virtue of their dependency.

Additionally, Applicant respectfully submits that claim 21 is separately patentable over the applied references for the same reasons discussed above with respect to claim 14.

Thus, Applicants respectfully request that the Examiner withdraw this rejection.

Conclusion

In view of the foregoing, it is respectfully submitted that claims 1-21 and 27-36 are allowable. Thus, it is respectfully submitted that the application now is in condition for allowance with all of the claims 1-21 and 27-36.

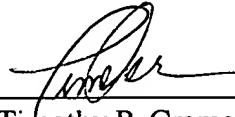
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If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Please charge any fees which may be required to maintain the pendency of this application, except for the Issue Fee, to our Deposit Account No. 19-4880.

Respectfully submitted,



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